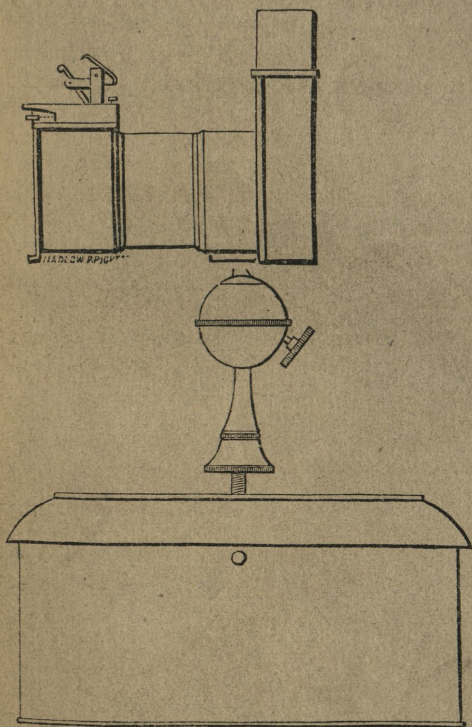


GUIDE TO THE PISTOLGRAPH,

BY

T. SKAIFE.

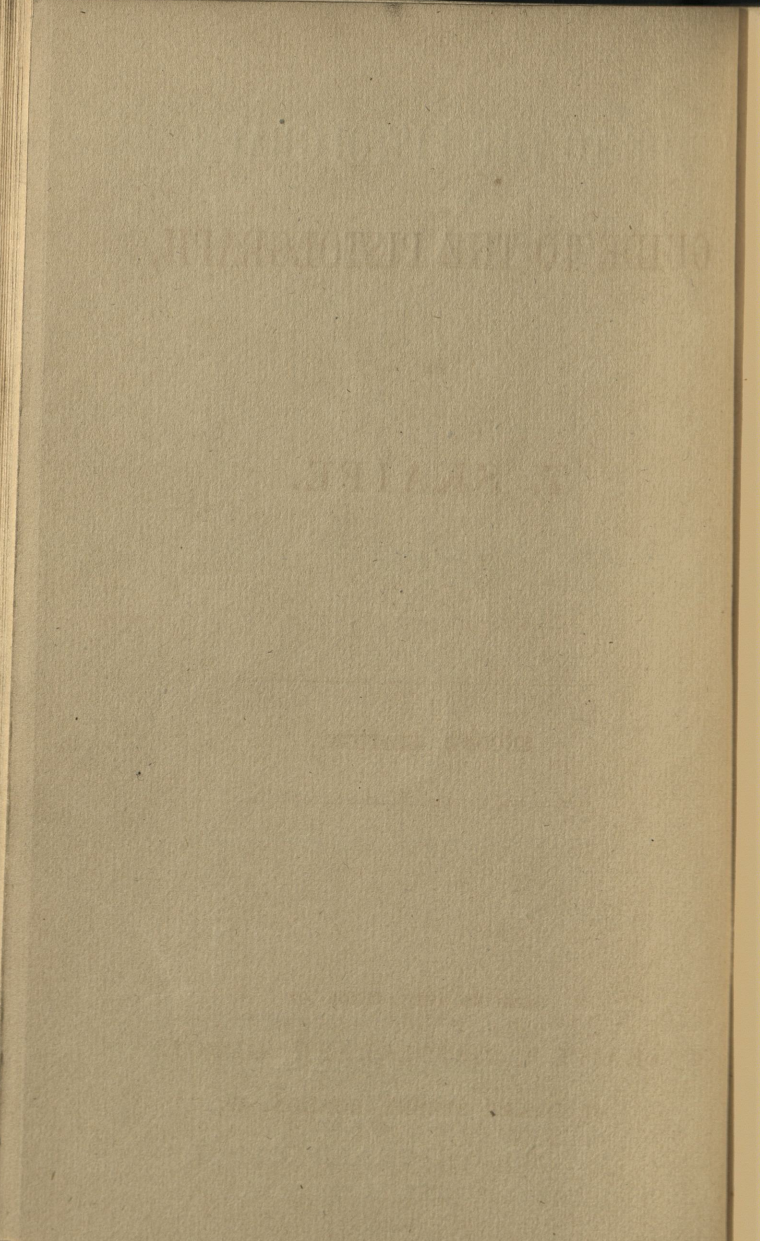


SECOND EDITION, PRICE 1s.

SOLD BY THE AUTHOR AT

SKAIFE'S 'PISTOLGRAPH DEPÔT,

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64 2

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THE HISTORY OF THE PHYSIOLOGICAL SCIENCES

CHAPTER I
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BY
T. SWALE

CHAPTER II
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CHAPTER III
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Preface to the Second Edition.

SINCE the publication of the First Edition of Practical Instruction on the Manipulation of the Pistolgraph, an improvement has been made in the mode of fixing the Instrument to the Ball-and-Socket Jointed Holder; also in the position of the Stop-cock in the Manipulating Bag.

The Author has thought it advisable, for the benefit of Amateur Pistolgraphists residing abroad, to add some details on the preparing of Pistolgram Cement, as well as a Paper on the enlarging of Micro-Photographs, read at the last Meeting of the "Blackheath Photographic Society."

VANBRUGH HOUSE,

JUNE, 1861.

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Practical Instructions on the Manipulation of the
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the "Blackheath Photographic Society,"
January 1861.

INTRODUCTION.

The following pages are dedicated to those who, already conversant with the A B C of Photography and its dead or still-life productions, are disposed to enter that domain of light which records life in all its phases of motion, celestial and terrestrial; who, comprehending a means to its end, emulate rather the Naturalist who collects seeds to germinate future plants, than the plants themselves: whose faith in picture seeds, based on the rationale of light encouraged by the "reading made easy" of the Microscope, and confirmed by the study of its enlarged Photo-reproductions, does not oppose his giving, in nautical phraseology, a "wide berth" to those leviathan machines, full-plate cameras, which, like siege artillery, require no small *quantum* of horse-power for their transport; and which, though a necessity to some Photographers of the genus "*Limaçon*," are by no means calculated to add to the comfort of a traveller who centres his affection only on "carpet baggage,"—who, wide awake to doggano visitations, portorage, breakage, and spillage of gallons of

nitrate of silver bath, knows how to count the cost thereof; yet, with a feeling for the beautiful in life, would not forego a traveller's chance of picking up a Photo-gem worthy the jewel casket of either belle or philosopher.

A large photographic apparatus is not only objectionable to a traveller on account of its unwieldy bulk and the great expense which its every experiment entails, but from the total incompetency of such an apparatus, to realize a satisfactory picture of anything but still life, as the dear-bought experience of some hundreds and thousands of amateurs could testify who begun the perpetration of sun pictures before being grounded in the science of light.

By way of distinguishing this branch of Photography, to which the following Treatise is a guide, the name Pistolgraphy is given to it; and the instrument employed for the purpose is called a Pistolgraph, which, compared with the old-fashioned wooden Cameras, is so small as occasionally to call forth from a would-be purchaser an expression of surprise at its dearness, which as often reminds the Author of the following Switzer:—

A Swiss peasant went one day into a watchmaker's shop in Geneva to buy a watch, and after higgling a considerable time over the price of a large old turnip-shaped timepiece, value some 20 francs, at last by way of finish to the bargain, exclaimed, "*à moins, Monsieur, vous me donnerez cette petite bagatelle audessus du marché.*" The little bagatelle was a miniature jewelled watch worth 100 guineas.

Pistolgrams, the production of a Pistolgraph, possess two distinct properties. 1st, the faculty of supplying

artists with truthful details,* by enlarged reproduction of that which is too complex to be easily remembered, too fleeting to be registered by any but concentrated light, and too valuable not to hold out a premium to whatever and whoever succeeds in its pourtrayal. 2nd, the preserving, by a process called "Indurating a Pistolgram in Chromo-Crystal," a picture in metallic silver, by imbedding and hermetically sealing it in glass, in such a way as to give assurance of its being more permanent than any other mode of preserving a picture whatever.

* "I have no hesitation in considering the Photographic Portraits taken by your Instrument with small lenses as far more truthful and correct than those taken by the ordinary Cameras, whether they are examined by a Microscope when in the crystal state, or enlarged to the ordinary size by an enlarging Camera. From the singular rapidity, too, with which the instrument performs its work, the most agreeable expression of the sitter may be seized and perpetuated.

"The specimens you have sent me are very good, and will bear a considerable magnifying power. That of Miss Morrit, whom I met with at Abbotsford more than 30 years ago, is particularly excellent;† but I consider the one of yourself as the best, from the greater contrast between its lights and shadows."—*Extract from a letter addressed to to the Author by Sir David Brewster, January 14, 1860.*

The intelligent amateur is informed that the last Pistolgram alluded to was taken in a small parlour in Brighton by the Author's senior pupil on a wet gloomy day last December (1859).

† This Portrait was copied from an original Pistolgram in the possession of "Minna," the heroine of Sir Walter Scott's novel of "The Pirate," now resident in Brighton.

CHAPTER I.

MATHEMATICAL PHOTOGRAPHIC INSTANTANEITY.

As a point is to magnitude in Geometry, so is instantaneity to time in Photography. Time is duration with beginning and end, but instantaneity is beginning and end without duration.

All operations in Chemistry, Optics, and Mechanics, requiring time for their operation, strictly speaking there can be no such thing as an instantaneous Photograph executed by man or physical means, until light, enfranchised from that which restricts its velocity to 98 thousand miles in a second, becomes as free as thought to visit the most distant object as quickly as the nearest.

POPULAR PHOTOGRAPHIC INSTANTANEITY is as latitudinarian as the terms long and short, some holding that an instantaneous Photograph is one taken in a second; others, as quickly as the dark slide can be lifted up and down, or the cap of the lens taken off and on, or "as quick as possible."

The writer, in his search after "the instantaneous," recollects being enticed into a Photographic studio in Regent Street, by "*Instantaneous Portraits taken here,*" but upon trial the "*instantaneous*" turned out to be a 30 seconds' affair.

The best, oldest, and most reliable test of instantaneity, in a popular sense, is undoubtedly "the twinkling of an eye," the quickest as well as most uniform voluntary movement common to man and beast. It has been stated by scientific Opticians that the image of an object once falling on the eye's retina, cannot be removed therefrom in less than one-tenth of a second. The twinkling of an eye comprises a closing and opening movement during which the eye is darkened for the space of one-tenth of a second. The very trifling obscurity of vision which takes place during this natural twinkling of the eye with most persons when reading, countenances the hypothesis that this movement was adjusted with a regard to the time which light rests on the retina. Taking these two remarkable coinciding phenomena as data whereby to distinguish practically the instantaneous from other movements, we shall find that as a flash of lightning passes unperceived by eyes happening to be in the act of twinkling at the time, therefore lightning may be regarded as instantaneous, as whether it passes in the tenth of a second, or less than the ten millionth part of a second, the unassisted eye has no means of ascertaining. On the other hand, a movement which is begun and not ended during the twinkling of an eye (that is in the one-tenth of a second), as it cannot escape the observation of a looker-on, therefore such a movement in a popular sense is not instantaneous, seeing the unassisted eye can take the measure of its duration.

THE PHOTOGRAPHIC CAMERA AND THE PISTOLGRAPH.

The Photographic Camera* derives its surname from the Camera Lucida, a square-shaped wooden box, invented for optical purposes by a Neapolitan savant some three hundred years ago. But as Photography,

* Camera, through very euphonious in Photography, is at best but a *pis aller*, as the French would say. Camera, in the original Italian, signifies a room, parlour, or bedchamber. A Photographic Camera is understood as the Instrument by which Photographs are taken.

But with more propriety, from a linguist's point of view, this name should be given to the Photographer's dark operating-room. In this respect the French are not much in advance of ourselves, for they call their Camera a *Photographic "chambre noir."*

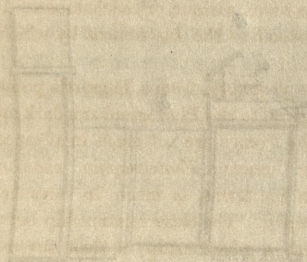
Telegraphy, in its terms, is much in advance of its sister science, *Photography*. The close relationship between light and electricity suggest a relationship in their several terms. The Electric Telegraph is the quickest instrument known for the conveyance of messages. The Photo-Pistolgraph is believed to be the quickest practical instrument known for taking children's portraits. By common consent a Telegraphic Message is now called a Telegram. Why may not, with equal propriety, a picture thus obtained (a light engraving, if you please, in black and white) be called a Pistolgram? (*See Appendix.*)

Life is short, but art is long. The craving for new ideas is inexhaustible; but eyes will wear out.

Commercially speaking, short terse words pay better than long euphonious phrases. In print the latter cost sixpence more—a sordid consideration, truly; but still it has its weight with those who work for bread as well as fame. (*Extract from a paper read by the Author at the North London Photographic Association, 23th November, 1860.*)

like Music, developed its various branches, other instruments than those made of wood, and of other shapes than square, became desiderata with those who aspired, by Heliographic aid, to see and know the Great Unknown.

In the summer of 1858 the Stereoscopic Camera revealed to the Author sundry phenomena at once startling and instructive, which, bringing him indirectly to a consideration of the Electric Telegraph, finally produced the Pistolgraph, the use of which, and how to use it, will be found in the following pages.



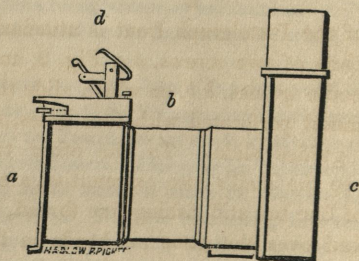
The Pistolgraph (Fig. 1) is a camera of the
 portable type, and is the front of the camera, and the back
 The front carries the following spring-actuated
 the latter; on the top of the front is a small
 The spring-actuated camera is the aperture of the lens in
 front, and are fast closed by means of a lever or
 of both which are looked over the middle of the
 pins which project in front from the two
 drawn behind them.

The 1 is the front of the Pistolgraph, the back
 is the 2, which is the back of the camera.

CHAPTER II.

THE PISTOLGRAPH.

FIG. 1.*



The Pistolgraph (Fig. 1) is screwed together in three parts, viz. *a* the front, *b* the centre, and *c* the back.

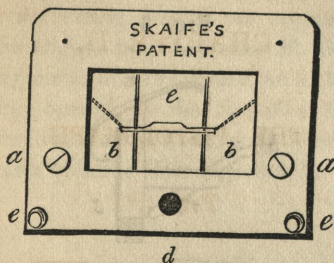
The front carries the folding spring-shutters facing the letter *a*; on the top of the front is seen the trigger *d*.

The spring-shutters cover the aperture of the lens in front, and are kept closed by means of a band or loop of india-rubber thread hooked over the heads of two pins which project in front from the two shutters' drum-headed pinions.

* Fig. 1 is half the size of the original, lineal measure. Fig. 2 to Fig. 6, inclusive, the exact size.

TOP OF THE PISTOLGRAPH'S FRONT.

FIG. 2.

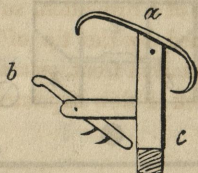


The top of the Pistolgraph front is attached to main front by means of two screws, *a a* Fig. 2, and carries two steel needle guides, *b b*, on which slide the mail *e*, a piece of metal perforated with four holes, in two of which the guides slide. To the other two holes, which pierce the mail's two extremities, are attached two loops of fine but stiff fishing-line thread, which, on being hooked over the same pin-heads in front, over which the india-rubber band is hooked, connect the shutters with the mail.

The proper position of the mail when the shutters are closed is about midway on the guides, which position admits the tip of a finger being applied to the mail in place of the trigger, when the object required to be pistolgraphed is not sufficiently illumined to admit the rapid action of the latter; *d* is the socket into which the lower extremity of the trigger is screwed; *e e* two knobs on which the india-rubber band is distended, and which serves, according to its strength, to make the trigger so strike the mail as to occasion a rapid opening of the shutters or otherwise.

THE TRIGGER.

FIG. 3.



The Trigger is composed of three parts, viz. *a*, the catch; *b*, the lever, on the lower extremity of which are perceived two points, between which is passed the distended india-rubber band, which, on the lever being detached by the catch, forces it home, occasioning it to strike the mail in its passage, as already described; *c*, the support, the lower extremity of which screws into the top of the front, also described.

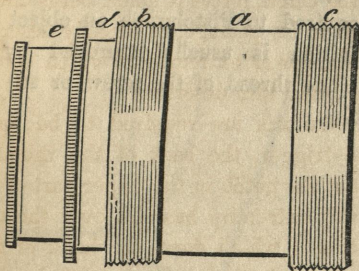
When the shutters are required to be opened by means of the trigger, the back of the thumb nail is pressed against the notch in the upper part of the lever until the lower extremity has slid over the mail to a position in front; which done, the hook of the catch being allowed to drop on the top of the lever, the thumb nail may be withdrawn from the notch, as the lever now will be retained by the catch. Much now depends on the nice adjustment of the two elastic india-rubber bands, one of which opens the shutters whilst the other closes them.

If both the springs be strong the exposure will be rapid; if the opening one be weak there will be danger

of the trigger hanging fire by not being able to return home over the mail, in which case the picture, if the light be strong, in most cases will be spoiled. When the light is not strong enough to require a trigger exposure, the trigger may be removed altogether, or unscrewed a quarter of a revolution, so as to admit the shutters being opened by the tip of a finger being pressed against the mail in front, smartly or otherwise, accordingly as a quick or slow exposure be required.

THE PISTOLGRAPH'S CENTRE.

FIG. 4.

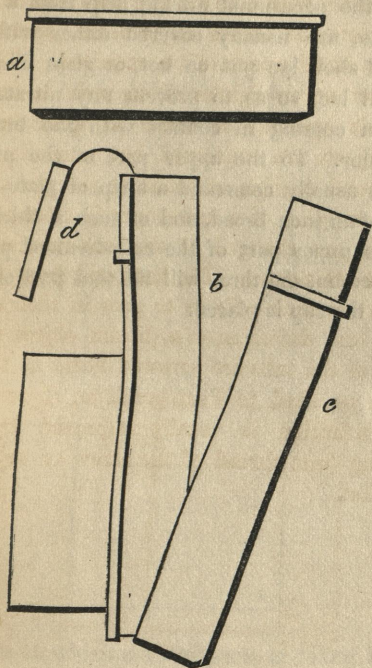


The Pistolgraph's Centre, or body, when detached from its front and back, presents the above appearance, and is composed of three tubes which slide into each other like a pocket telescope. Fig. 4, *a* is the outer tube on which are the screws *b* and *c*; *b* receives the front, *c* the back; *d* is the middle tube in which slides

the lens tube *e*, carrying double achromatic lenses. The front lens is a cemented compound, detached from the back uncemented combination by means of a diaphragm, which diaphragm (thin circular piece of blackened brass with hole cut in centre) can be detached from between the lenses at pleasure, accordingly as a large or small aperture be required. The lenses being about seven-eighths of an inch in diameter, a five-eighth's aperture is found to work best where moving objects are concerned, but a smaller aperture will be found capable of realizing sharper definitions when the copying of a newspaper is attempted. The diaphragms are changed at the lens-tube screw-joint found near the centre. The back and front lenses are so adjusted in their cells as to give in their combined focus the best definition of a distant object when the two ends of the tube are screwed home at the joint; but when required to Pistolgraph an object as large as life, definition is usually improved by slightly unscrewing (one thread of the screw or so) the tube at the joint.

THE BACK.

FIG. 5.



The Back is also composed of three parts, Fig. 5. The cap, *a*, on being removed, admits of the other two parts, *b*, *c*, being easily separated by the application of the thumbs at the opening exposed at the top by the removal of the cap *a*; *b* is the plate-holder, provided with a leathern flap *d*, the use of which is to retain

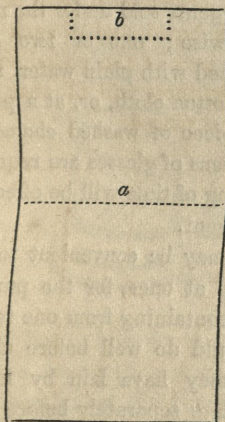
the collodionized plate in proper position, not only until *b* and *c* can be capped with *a*, but also during the plate's exposure.

The inner sides of the plate-holder, liable to be exposed to the occasional nitrate drip from a wet collodion plate, are usually covered either with a thick coating of shell lac put on hot, or glass fixed thereon with shell lac, so as to prevent any nitrate of silver bath from coming in contact with the brass of the plate-holder. To the upper part of the plate-holder inside, is usually cemented a strip of plate-glass five-eighths of an inch broad, and of such a thickness that when the upper part of the collodionized plate is retained thereon, the three will fill that part of the back on which the cap is placed.

CHAPTER III.

THE GLASS PLATE.

FIG. 6.



The Glass on which a Pistolgram is taken is usually a piece of patent plate the size of Fig. 6, and from *a* downwards especially free from specks, or other imperfections of any kind.

To each plate, on the upper part of that side on which the collodion is poured, a small strip of glass (*b*) is cemented with shell lac. This strip of glass answers a three-fold purpose : viz.—

1st. To suspend and retain the plate in proper position in the back.

2nd. To enable the operator by touch to ascertain on which side the film is.

3rd. To admit of half-a-dozen or so of exposed plates being placed together in a jar, without risk of their films being injured thereby.

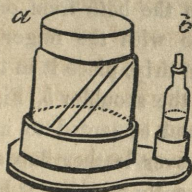
After the fixing of this strip of glass on the plate by means of shell lac and a lighted candle or lamp has been effected, the plate may be cleaned by any of the well-known detergents sold under the name of diamond polish, or otherwise; one or two glasses may be occasionally cleaned with plain water, rubbed dry with a clean linen or cotton cloth, or, at a pinch, with a silk handkerchief or piece of washed chamois leather; but where several dozens of glasses are required in a day, a considerable saving of time will be effected by employing a good detergent.

Yet though it may be convenient to cleanse several dozens of glasses at once, for the purpose of packing away in papers containing from one to two dozen each, the amateur would do well before using a packet of glasses, which may have lain by for some time, to examine each plate separately before placing it in the glass depôt, in case any dust should appear on the surface, which ought to be removed with either a clean soft brush, silk, or chamois leather, otherwise sundry little pinholes, sooner or later, will infest the surface of the Pistolgrams when the surplus collodion is drained off into the same bottle from which it is poured.

CHAPTER IV.

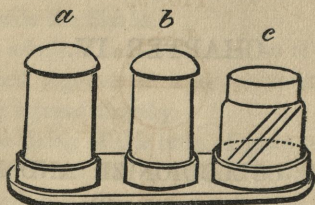
HOW TO COLLODIONIZE AND EXCITE
THE PLATE.

FIG. 7.



Remove cover from plate dépôt *a*, Fig. 7, and take hold of one of the deposited plates in such a way with the finger and thumb that the tip of the latter will be in contact with the cemented strip *b*, Fig. 6, then remove stopper from collodion bottle *b*, Fig. 7, with the two middle fingers of the plate hand, and with the forefinger and thumb of the other pour as much collodion on the lower half of the plate as will easily cover it up to *a*, Fig. 6, then drain off into the bottle as much as will flow. As soon as collodion film is fairly set, plunge it into the porcelain nitrate of silver:—

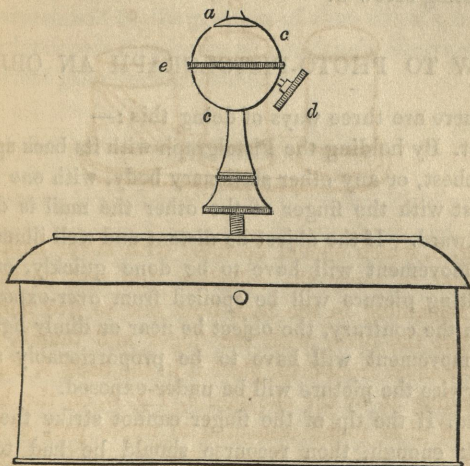
FIG. 8.



a, Fig. 8, which should be filled with silver bath just sufficient to cover the collodion film and no more; after remaining in the bath from one to five minutes take out the plate with the finger and thumb, and, when drained from drip, place it in the back *b*, Fig. 5, suspending it by the shoulder *b*, Fig. 6, on the broad piece of glass found cemented to upper part of back inside, next turn over leather flap *d*, which should be so fitted that on gently pressing it home it will be able to retain the plate during exposure in the same position the ground glass occupied when focussing; next turn up back door *c*, and put on cap *a*, which done the Pistolgraph may be exposed to white light without prejudice to the enclosed collodionized plate.

THE BALL-AID-SOCKET JOINTED HOLDER.

FIG. 9.



Represents the ball-and-socket jointed holder screwed into the lid of a small box (the instrument's case). It consists of three parts: viz. *a* the plug and ball, *c c* the hollow sphere, and *d* the mill-headed adjusting screw. For the convenience of packing the Pistolgraph in its case together with its holder, the plug *a* is left in the ball; but when in use, it is attached to the bottom of the Pistolgraph's back by a female screw, and when so attached, a slight upward pressure against the bottom of the instrument, will easily detach the plug from its square socket in the ball, which is covered by the hollow sphere *c c*. When the two halves of the hollow sphere *c c* are screwed tightly home at their junction *e*,

the mounted Pistolgraph can be depressed or elevated 40 degrees, and turned freely to any point of the compass, and there fixed by means of the mill-headed adjusting screw *d*.

HOW TO PHOTO-PISTOLGRAPH AN OBJECT.

There are three ways of doing this :—

1st. By holding the Pistolgraph with its back against the chest, or any other stationary body, with one hand, whilst with the finger of the other the mail is drawn backward. If the object be distant and well illumined, the movement will have to be done quickly, or the resulting picture will be spoiled from over-exposure; if, on the contrary, the object be near or dimly lighted, the movement will have to be proportionably slow, otherwise the picture will be under-exposed.

2nd. If the tip of the finger cannot strike the mail quick enough, then recourse should be had to the trigger, Fig. 3, which, on being screwed home in top of front, *d*, Fig. 2, should present its lever, *b*, Fig. 3, with projecting pins opposite the mail, *e*, Fig. 2, between the two projecting pins. In front of lower part of lever should be stretched the opening india-rubber band, of such a strength as to open the shutters as quickly as may be required, the ends of the elastic being hooked over the two knobs, *e e*, Fig. 2. To cock the trigger proceed as described page 16.

3rd. If the unsupported hand of the Pistolgraphist is not sufficiently steady, recourse should be had to the ball-and-socket jointed holder, the lower part of which may be screwed into any convenient stand, tripod, or otherwise.

To secure the image of an object in the centre of the plate, look along the transverse line cut across the middle of the cap when the latter is *home* on the back. Accordingly as the line points to an object during exposure, so will be the position of that object's image in the developed Pistolgram as previously observed on the ground glass during focussing.

FOCUSSING.

Focussing is performed thus : place the Pistolgraph, previously separated from its shutter front and *back door*, in its ball-and-socket jointed holder, as already described ; then take a strip of finely ground glass, the size of picture plate, and place it in the back, with ground side resting against the strip of glass which will be found cemented across the upper part of the back inside, after the leathern flap *d*, Fig. 5, has been turned outward ; which done, return the leathern flap *d* in such wise that it will bind the ground glass fairly against the cemented glass in the exact position the collodionized plate is intended to occupy. Next replace the cap and with tip of finger hold it steady home on the shoulder in its usual right-angled position with the back. Then direct the Pistolgraph towards the object to be focussed, taking care to look along the cap's central transverse line whilst the screw of the ball-and-socket joint is being tightened. When the object is perceived centred on the ground glass and its relative position observed by the transverse line, carefully slide the lens tube backward or forward, *a la* telescope, accordingly as the object to be focussed is distant or near. If a sufficiently fine adjustment cannot be easily obtained in this way, then recourse should be had to

the screw adjustment found in the back, one turn of the "centre" in which will give a variation of the thirtieth of an inch, whilst the one-hundreth part of the centre's revolution will give a three-thousandth part of an inch.

If the required Pistolgram is intended to supply an enlarged reproduction, an eye-glass of sufficient power capable of detecting on the ground glass all detail required to be seen in the reproduction will be found to be of considerable advantage in focussing. The desired sharpness of definition being obtained on the ground glass, replace the shutter front carefully, and exchange the ground glass for an excited plate, proceeding as described page 24.

HOW TO DEVELOP A PISTOLGRAM.

On the plate being duly exposed, whether by trigger or otherwise, no time should be lost in developing the picture.

1st. Remove the cap, then introduce the two thumb nails between leather flap and back door, which force open, then slide glass upwards until a slight pressure applied with tip of thumb to the flap's upper extremity will bring the exposed plate out of the back at an angle from 40 to 60 degrees, which will admit of its being easily taken hold of by a finger and thumb, and at once transferred to the developer by one perpendicular plunge, where it may remain from five to fifty seconds, accordingly as it is suspected the plate has been exposed to a strong lighted object or otherwise. If this operation be performed in a room illumined with dim yellow light, the progress of development may be occasionally watched.

FIXING THE PISTOLGRAM.

When sufficiently developed, plunge the Pistolgram into the jar *e*, (Fig. 8,) containing salt and water (proportion, one teaspoonful to three ounces of water) for a second or two, which done, the photo may now without much risk be brought to white light, but not sunlight, as this would in a few seconds injuriously darken the picture.

If the operator is not prepared to exclude the developed Pistolgram from daylight, he had better clear it off at once with dilute cyanide of potassium (ten to twenty grains dissolved in one ounce of water), after which, with a slight washing, it may be deposited in a wide-mouthed bottle, containing plain water, for a few hours without risk; but if intended to be stored away for a few days, before being dried off it should be washed well under a tap for a few seconds.

If after being cleared off with cyanide the picture is found to be over-exposed, dry the plate (film side uppermost) over a lamp or candle or before a clear fire, which operation will so fix the film on the glass as to be immovable with fair washing, then reduce film with cyanide, watching the reduction attentively whilst keeping the fluid cyanide on the plate continually in motion, otherwise before the required reduction takes place the film will be eaten into pinholes, the destruction commencing at the sides. From five to fifteen minutes should effect the required reduction, otherwise the resulting picture will be apt to be too dark in the lights. After the second reduction a good washing

under a gentle tap will be necessary, when it may be stored away in a glass depôt with water or at once dried off.

When a Pistolgram is dried off, it may be deposited along with others in a covered jar, or if intended to be sent to a distance through the post, the film should be protected from injury by another piece of glass being placed over it, a strip of cardboard gummed or glued to the upper interior of either of the two glasses being sufficient to prevent injurious contact; a thread then passed round the two a few times will secure the plates from jarring, a piece of fine silk or tissue paper will secure dust from getting wedged between the two interior surfaces, a piece of deal or other light wood the length of the plates, having two sides just so far apart as to admit the two plates, and so high that on being covered with a little cotton wool, another piece of deal would so rest on the sides as to protect the enclosed from any injurious pressure which the stamping of the Post Office officials could inflict.

CHAPTER V.

THE PISTOLGRAPH'S CHEMICAL FORMULA,

Considering the rapid results obtained thereby, is extremely simple and economical.

The best collodion for the purpose is that usually called positive, having a texture that yields a clear glass-like film, is sold ready iodized, and does not decompose or deteriorate in sensitiveness by keeping six or twelve months after iodizing.

The exciting nitrate of silver bath should be made of the strength of about thirty grains of nitrate of silver to one ounce of distilled water. The amateur who does not wish to embarrass himself with more mixing up of chemicals than is necessary to ensure success, can purchase silver bath solution of the proper quality and strength from most of the respectable dealers in Photo Chemicals.

But in case this plan might not always be convenient, the following formula the Author has found to realize good quick results, both positive and negative.

EXCITING BATH.

Dissolve

1 oz. of pure nitrate of silver in

16 oz. of distilled water, then add

One-fifth of an ounce of iodized collodion, which should be well shaken with the silver solution for a few seconds, then allowed to settle an hour or so, or until the precipitated iodide of the collodion ceases to be taken up in the solution, when the bath will be ready for use as soon as filtered through clean neutral filtering paper.

After one or two dozen plates have been excited in $1\frac{1}{2}$ ounces of bath solution, the Pistolgrams are apt to exhibit perpendicular opaque streaks or transparent pinholes. In which case the bath ought to be refiltered, and as much plain nitrate of silver solution* added as would raise the solution to the required strength. When the bath is too strong, chalky stains from excess of silver appear on the surface of the film, but which on the plate being dried, can be removed with a silk handkerchief or tip of a smooth finger. Excess of silver in the bath will also tend to make the collodion film break away in the after-washing.

* Experience proves that a 35-grain solution of plain nitrate of silver, is better than a 30-grain ditto for replenishing an exhausted bath.

DEVELOPING BATH.

As a developer of Pistolgrams, iron is found to be more practical than pyrogallic acid both for *positives* and *negatives*; but as the solution is apt to decompose during warm weather, the amateur is recommended to make it as he wants it, according to the following formula.

Dissolve

1 oz. protosulphate of iron in

1 pint (20 fluid ozs.) of distilled water to which add

1 oz. acetic acid (not glacial) or $1\frac{1}{2}$ ozs. good white vinegar, and

1 oz. of good pure gin. When the iron is dissolved, filter through clean neutral blotting paper.

Where filtering is not convenient, good results may be obtained by decanting the solution from a deep bottle where, after being well shaken, it has rested several hours; this *developer* will do either for *negatives* or *positives*, according as a plate is allowed to remain immersed therein 20 or 40 seconds. After some two dozen plates have been developed in $1\frac{1}{2}$ ounces of bath, the Pistolgrams will begin to show symptoms of spangles or dusty particles of metallic silver on the surface, a sign that the developer requires changing. But where iron or distilled water is scarce, old developing solution may be put on one side, and when settled, the clear may be profitably decanted off and mixed with new developer.

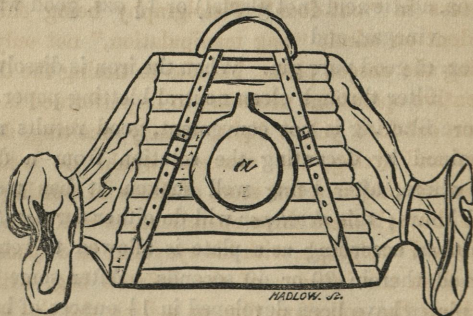
When the developed film shows cankerly stains not removable after fixing with cyanide, a few drops of acetic acid or vinegar should be added to the developing solution: too much acid retards development inconveniently.

To Fix and Clear Pistolgram, see page 29.

CHAPTER VI.

THE FLEXIBLE MANIPULATING BAG.

FIG. 10.



The Flexible Manipulating Bag, composed principally of india-rubber-cloth air-tight tubes, can be inflated or collapsed at pleasure by means of a stop-cock placed in front opposite the flap *a*, Fig. 10. When inflated, the bag stands from nine to ten inches high, whilst its flat bottom measures about twelve inches square.

In front is a circular aperture two and a half inches in diameter, covered with a light tight flap *a*, Fig. 10. opening upwards either from outside or inside. The

use of this aperture is to enable the operator to see to collodionize the plate inside the bag. The other three operations, namely,—1st, taking the plate out of the exciting bath *a*, Fig. 8, and placing it in the Pistolgraph; 2nd, removing it from thence to the developing bath *b*; 3rd, transferring it from the “developer” to the jar of salt and water *c*, should be performed with the flap *a*, Fig. 10, covering the aperture:—as any admission of white light into the bag whilst any of these three operations are being performed in it would injure the Pistolgram.

Success in “out-door” Pistolgraphy being chiefly dependent on adroit “bag manipulation,” not only in handling the unseen plates, but also in timing the three consecutive operations necessary to be performed in the dark or subdued yellow light, namely, exciting, developing, and fixing, the amateur would do well to exercise his fingers a few score of times in putting the glasses through these three operations, as well as in and out of the Pistolgraph, with his eyes shut in a space not larger than the interior of the inflated bag, without scratching the collodion film, or soiling the tips of his fingers. And having observed in subdued yellow light how many seconds a plate in a certain temperature requires to be thoroughly excited in a silver bath, (known by the opal film exhibiting no greasy streaky lines,) and how long the same plate, after being duly exposed and saturated with a certain known measure of light,* requires to be kept in the developer before the image is sufficiently developed, and the intensifying

* The known measure can only be obtained by repeated experiment.

as well as fixing effect of the salt and water plunge ascertained,—the amateur will then be in a condition to attempt manipulating in the bag with a reasonable chance of securing satisfactory results, either in a “berth” on board ship, or in a railway carriage going at full speed, with but little risk of perpetrating that too well-known and justly dreaded horror, a “Photographic Mess.”

CHAPTER VII.

ENLARGING A PISTOLGRAM.

There are many ways of reproducing photographically an enlarged copy of a Pistolgram, but the one most practicable to amateurs generally would be to take from the negative a positive on glass by superposition either on a dry or a wet collodion plate. If wet collodion be the material employed, then the negative should have a piece of cardboard fastened across the upper part of the film side of the negative, extending about one third the length of the plate. This will prevent the film of the negative being moistened by the wet collodion plate intended for the positive, which last, on being taken out of the nitrate of silver bath, ought to be well drained on a strip of blotting paper before being placed behind the negative.

When sufficiently drained, superpose the negative, and hold the two firmly together by the upper part, where the cardboard separates the two plates, and so expose the two to a pencil of light admitted from the sky through a hole in a door or window shutter one-tenth of an inch in diameter, at the distance where the cone of admitted light covers the plate. A few trials will show whether a long or short exposure gives the

best results; as a rule, if an exposure of ten seconds be required to realize a transparent positive where the admitted cone of light is just sufficient to cover one square inch of the negative's surface, one tenth of a second would be sufficient to give the proper intensity to a one-hundredth part of the positive when placed in contact with the one-tenth of an inch aperture. The positive, after development with iron (by dipping), if not sufficiently intense, may be intensified with a solution of chloride of gold, iodine, or pyrogallie acid, accordingly as the amateur is best skilled in either one or other of the intensifiers.

When a positive has been obtained of the required intensity, and with no imperfections which a magnifier of equal power to the lens of the Pistolgraph can detect, place it in the back of the Pistolgraph in the same position which the negative occupied when taken, and so place the instrument in a room lighted only by a skylight or aperture, that no light shall enter the room, excepting through the small positive picture. To do this effectually, a box should be so constructed and fitted to the skylight (from which the glazing is removed) as to admit of the Pistolgraph being firmly attached thereto in such position as to enable the operator to focus the instrument and easily inspect the enlarged image projected on a white table, or white paper screen, placed exactly beneath the enlarging lens, at a distance of from one to two or three feet from the latter, according to the size of the required enlargement.

The focal distance being found, exchange the screen for either a wet or a dry collodion plate, and proceed with the exposure as in an ordinary photographic operation. If the reproduction is intended to be not

less than ten or twelve inches square, a useless waste of chemicals might be prevented by trying a small plate first at the distance from the enlarging lens where it is decided to take the reproduction, in order to ascertain the proper length of exposure. As a rule, the enlarger would do well to bear in mind—that if a cone of light gushing through an aperture one quarter of an inch in diameter will decompose or saturate with actinism a film of collodion at the cone's apex (aperture of the diaphragm) in one-sixteenth part of a second, then will a plate ten inches in diameter require an exposure of one hundred seconds when placed where the cone's base equally measures ten inches in diameter; greater and lesser dimensions being timed in the same ratio, viz., one square inch to a second.

ON ENLARGING FROM MICRO-PHOTOGRAPHS.*

A Microscopic Photograph, whether under the name of "Pistolgram," or otherwise, although generally appreciated for its *multum-in-parvo* properties by eyes that luxuriate in small print, yet, as "change comes o'er the spirit of dream," so it is with the idol of affection, whose image, secreted in a little gold locket, is there exclusively worshipped by one devotee. But when the beloved one merges into *paterfamilias*, so does his image require an amplification of proportion,

* Read by Mr. T. SKAIFE at a Meeting of the Blackheath Photographic Society, April 15, 1861.

not only to meet the necessities of patriarchal eyes, but to be in keeping with the patriarchal gallery. Here our art-science has stopped short—to the satisfaction of sundry artist painters no doubt, but not equally so to those who would see in the life-sized family portrait that truthfulness perceived in the Miniature Photograph.

To meet this want Photographers are now taxing their ingenuity, and enlarging Cameras with more or less success. Chief, perhaps, amongst the enlarging class is Woodward's Solar Camera; but which, though well adapted for sunny Egypt, or Brighton during the "dog-days," stands small chance of being appreciated in the neighbourhood of London smoke while the sun is walking south of the equinox.

To a modification of the electric light the hopes of cloud-capped and fogged Photographers are now turned. But, not to waste time in anticipation of the epoch when the sun is to be outshone at noonday, I have trimmed me a chamber lamp, which, with its complement of wick and oil, cost sixpence; this on being lit and placed within the focus of a glass reflector,* can have the image of its flame reflected upon the surface of the Pistolgram. Now, supposing an enlarged reproduction is required from this small Photograph, I replace it in the back of the Pistolgraph, which I pose opposite the reflector at a distance from the latter of about double its radius, and place the lamp midway or nearly so between the two, moving the lamp backward or forward until the Pistolgram appears brilliantly illumined. Now if a white screen be placed in front

* Price half-a-crown.

of the Pistolgraph (from which the shutters have been removed, say at the distance of three feet, a large picture will appear projected thereon *a la* magic lantern. Beneath the screen upon which the magic Photograph is projected I place a second table *vis-a-vis* to the first, upon which stand the Pistolgraph, lamp, and reflector, a sufficient space being left between the two tables to admit of the operator and his chair.

Upon this second table I place a drawing board fixed perpendicularly in a foot, which, when viewed in profile, has the form of a \perp square. In this instance my drawing board, you will perceive, is a stout mahogany picture frame, across the back of which two pieces of wood are screwed, so as to form a groove into which the frame is pressed. On the plate glass in the frame I fix a sheet of drawing or common cartridge paper, by the two upper corners, with a little gum. This done, I next decide on the size of the required enlargement, sliding the drawing frame nearer or farther from the Pistolgraph, and obtaining a proper focus that way, or by turning in or out the screw of the lens. I then take a small sable pencil dipped in a little neutral tint, and pass it over all the light parts of the picture, repeating the process until the illumined parts have attained the shaded density of the shadows: which done, on bringing a light to the front of the lens, an imitation Photograph will be found to be the result. Although this imitation, if hastily done, will be found wanting in some of the minor details of the original, the deficiency will be more than compensated by the better adaptation of the imitation than the genuine Photograph to receive the colour thereon, when applied by the skilful touch of an accomplished

artist; for the material upon which most artists prefer to paint, whether in oil or water colour, is not generally that best adapted for a Photograph, and *vice versa*. Nor does experience prove that a painting, whether done in water or oil, on a Photographic base is as durable as one otherwise painted.

Formerly the Messrs. Dickinson, of Bond Street, whose pictures from Photographs have attained such high celebrity, painted upon the Photograph; but, in consequence of the numerous complaints made of the fading of pictures so painted, I was informed some months ago by one of the firm that they had abandoned that system, and now employed competent artists to copy all their best Photographic Portraits by hand, when intended to be finished in colour from the life. The experience of the Messrs. Dickinson, coupled with that of others, added to the no small trouble entailed in obtaining an enlarged negative from a Micrograph, has induced me to adopt the plan just described, which, where only one or two enlarged reproductions are required for artistic purposes, answers excellently, a great saving of time being effected thereby, as the head of a child or other subject, which would take a skilful artist, many hours to copy or enlarge by the unassisted eye and hand, could, by the magic lantern means, be copied more correctly in one-quarter of the time.

[Here Mr. Skaife placed a Photographic Portrait on glass, the size of a small finger nail, in the back of the Pistolgraph; then lighting his small lamp (the gas being turned down), an enlarged picture was perceived on the drawing board screen, which was increased up to life size or diminished accordingly as the screen was

slid backward or forward. Finally, adjusting the focus to about half-life size, he passed a small sable pencil, charged with a shade tint, rapidly over the distinctive light parts of the picture for a few seconds; then slightly turning the lid of the box upon which the "magic lantern" apparatus stood, the enlarged negative image appeared to slide off the sketch like a mask, revealing the progress of the sketch in contrast with the parent negative standing close by.]

You see it is not necessary that the enlarging copyist should be a draughtsman in the artistic sense of the word, although before the mere Photographic imitation can rank as a work of art, the mesmerising hand of an artist must pass over it.

CHAPTER VIII.

INDURATING PISTOLGRAMS IN
CHROMO-CRYSTAL.

This process consists in uniting the Pistolgram to a piece of polished colored glass with a species of cement,* and then baking the compound over a lamp until the two glasses are so united as not to be separable without breaking, or unless exposed to a heat that would in most cases injure the picture.

As this process can best be done by those most accustomed to it, amateurs are recommended when they have obtained Pistolgrams of value to preserve them in the manner described page 30, and, as opportunity offers, forward them to some one experienced in Chromo-Crystalizing, whose special business is to mount, bake, and cut the Pistolgrams to any shape that may be required, at an average cost of 3s. each.

* Pistolgram Cement is prepared by first filtering Canadian balsam through a piece of fine lawn or muslin, then evaporating it over the flame of a lamp, until the balsam has attained the consistence of amber (when cold). When a Pistolgram is required for jewellery purposes, a fragment of the hardened balsam is chipped from the solid and placed upon a piece of dark coloured glass, with which it is intended to back the miniature picture. Then the glass, with its superposed amber-like fragment, is held over a lamp until the fragment melts. This done, the Pistolgram, previously well heated, is next placed (film side) in contact with the melted fragment and gently pressed thereupon, until the latter is extended all over between the back and front plates inner surfaces, and its superfluity expelled at the sides along with all objectionable air bubbles; which done, the compound, when cold, will be found sufficiently homogeneous to admit of being cut to the required shape with a diamond, and finally polished on the lapidary's mill like any other piece of solid glass or stone.

LECTURE ON THE PISTOLGRAPH.

From the Brighton Gazette, December 1st, 1859.

The following Lecture was delivered by Mr. Skaife, the inventor of the Pistolgraph, at the recent *Conversazione* at the Royal Pavilion in connection with the Brighton Literary and Scientific Institution. We were unable to find room for it in our last impression:—

Ladies and Gentlemen—This little instrument is called a Pistolgraph,* partly from its shape, partly from its size, and partly from the way it is handled when employed to pistolgraph an object—in other words to take a picture by a flash of light. It is constructed on principles discovered last autumn, in the course of sundry photo-telegraphic experiments, which I was induced to make at the instance of a celebrated electrician, who was anxious to make photography subservient to the transmission of telegrams:†

But as it sometimes happens when one thing is sought for another is found, so, on this occasion, a ray of light, on being passed through an atom of Canadian balsam not larger than a pin's head, was found to give a continuous intense black line on a strip of paper with the fluency that ink flows from the pen of a rapid writer.

But on slightly increasing the size of the atom of balsam through which the light was passed, the continuous line, on the excited paper, was found to be less intense, and on still further increasing the diameter of the balsam bead, the line ceased to be continuous, nothing being visible on the excited paper, along which the point of light had passed, excepting sundry dots at the angular points of the light's zigzag course.

This decreasing energy of light was evidently owing to more

* First announced under the name of Pistol Camera, on the 11th of December, in the Journal of the Photographic Society.

† When these experiments were undertaken, the quickest mode of communicating telegraphic messages by the single wire system was that adopted by the Telegraphic Company, between Liverpool and London, but such was the *withering* rapidity of this electric tongue (in dumb show) as to have frittered, in one or two instances, the eyes of the watching clerk into premature blindness. But though a month's close investigation of the subject, with the advantage of studying the ingenious Photographic Apparatus employed at the Greenwich Royal Observatory, for perpetually registering the variations of the magnetic needle, under the able guidance of the talented and intelligent Superintendent, James Glaisher, Esq., F.R.S., proved the practicability of so conjugating light's actinism with electricity, as to effect not only a more speedy transmission of thought by the single wire telegraph, but at a less cost of human sight, unfortunately for humanity, the cost of the necessary chemicals at this epoch was found to be in excess of the resulting profits.

of its actinic properties being obstructed by the larger, and consequently thicker, globule of balsam than the smaller. The same effect was observed on repeating the experiment with lenses made of glass. On communicating this result to Mr. Shadbolt, the father of Micro-photography, and editor of the *Liverpool and Manchester Photo-Journal*, this gentleman made a series of experiments with his valuable microscopic apparatus, all confirmatory of the fact to which my photo-electric researches had previously awakened me, viz., that a small lens photographed a picture more quickly than a large one.* Coupling this singular lenticular law with another photo-optical speciality, ruling that a small photograph shall be *inlighted* (executed) more quickly than a large one (whatever be the size of the lens employed in its production), germinated a family of instruments the last and largest of which is this small machine, and which, under the name of Pistolgraph, I now have the honour of introducing to your notice. I would, however, that that honour had been delegated to another than the inventor, conscious as I am, and as you are aware, how a fond parent is but too apt to over-estimate the qualities of his offspring. With the understanding, however, that a little of your indulgence, under the circumstances, will be allowed me, I will, forthwith, briefly describe what the bantling can do. But first as regards its size and form. These were determined by the same rule which decided the size and form of the Colt's Revolver, viz., portable compactness, and competency to realize the object of its construction.†

It is to Photography what the Revolver is to gunnery, and bears the same relation to a twelve-inch plate camera, as a pocket pistol does to a twelve-inch mortar.

It will photograph a view of the sun, with its varying spots, at any hour of the day, and a country house by moonlight. It will register the hour, minute, and second of a country church clock from a railway train passing at full speed, or pistolgraph a cannon ball in its flight.

On sea or on land, in street, garden, or court, in the recess of the drawing-room window, or even in that of a bedroom, it is equally at home, provided that it has that *sine qua non*—light. Give it but that reflected from the object which it is required to portray, and the cherished smile and brilliant eye of the mother's hope is hers for ever.

Let there be but light, and plenty of it, on the object required to be pistolgraphed, and not only all that with which the eye of

* Also Mr. Grubb, patentee of the aplanatic lenses, in some valuable correspondence with which this gentleman favoured me on the subject, adds his testimony on the side of small objectives in point of quickness.

† Superficial observers, on first seeing the Pistolgraph, are apt to regard it as a mere toy, somewhat after the fashion which an old attachée of "Brown Bess" regards the Minie Rifle.

man is familiar can be satisfactorily portrayed, but even some of Nature's secret aspects, which, from their rapidly transient character, no human eye can see in any shape intelligible to its vision, can, by the lightning glance of this instrument, be conjured out of chaos,—transfixed, on the instant, in a picture visible and permanent, profoundly instructive in its every detail to the deep-searching philosopher.*

'Tis true the largest of these pictures, produced by the Pistolgraph, in the first instance, require generally a magnifying glass to bring out the details, but that is rather a recommendation than otherwise to some persons of taste, who derive more pleasure from looking at a diminished copy through a microscope, than on seeing the large original with the unassisted naked eye.

But it is not so much a question between a small picture and a large one, as between a small picture and no picture at all. Let it be borne in mind, therefore, that a Pistolgram, though a small photograph (and one which cannot be fully appreciated without the aid of a glass) contains a greater amount of Nature's living truth than is realisable in the first instance on the surface of a larger Photograph, or in a Photograph by a larger instrument.†

The short interval allowed me for these remarks will not permit me to go further into the Photo-optical argument of the matter, than to refer to some 500 of this instrument's productions, which it has executed in Brighton within the last three months, and of which, in the corridor, a few examples now await your inspection, including children, horses, and favourite dogs, taken under various circumstances of light and situation—court and garden, parlour and dortoir. These three enlarged reproductions are submitted to the amateur, rather as showing what is possible in this direction than as faultless results. The first represents two children in a perambulator, enlarged from the original Pistolgram ten diameters, and alluded to in the *London Photo-Journal* of last August. The second is the portrait of a well-known celebrated Photographer, resident in the neighbourhood of Blackheath, enlarged 11 diameters, being equal to 121 times the size of the small original, a print from which will be perceived attached underneath. This is recommended to the inspection of

* The reader is referred to the "Mortar Phantom Phenomena," particularly that one detected by a stereogram in the last firing of the "Monster Mortar," on the 28th July, 1858, described in the *Times* and other journals, and alluded to by Professor Owen, in his opening speech at the meeting of the British Association, held in Leeds a few weeks afterwards.

Also to the "Spray Phenomenon," detected by a Pistolgram (on concave glass), taken last spring on board one of the Woolwich steamers, and exhibited at the patentee's morning lecture on Instantaneous Photography, delivered in Mr. Hogarth's picture gallery in the Haymarket, on the 8th of June, 1859.

† See "Instantaneous Photography by T. Skaife," in the *Journal of the Photographic Society*, published 15th August, 1859.

those who are under the impression that the sharpness of a Photograph is sacrificed in its enlargement. The third represents a scene on the River Thames, taken from the pier in front of Greenwich Hospital. The principal feature in this instantaneous picture is the Greenwich Harbour Master's boat, which, though seemingly in the act of being rowed down the river, is, nevertheless, as sharp in outline as though it were standing still. On the opposite side of the Thames some barges are seen coming up with the tide, whilst, on the Isle of Dogs, in the distance, a newly-erected Church is distinctly visible, as is also a manufactory opposite that bend in the Thames where, it will be recollected, the Great Eastern, some two months ago, on her first trip, swung full twenty minutes in jeopardy. This is an example of a fifteen diameter enlargement being equal to 225 times the size of the original pistolgram, as seen by the subjoined print. These three reproductions were obtained by three different processes of enlargement, but all enlarged by the same lens which produced the small originals.

Amongst the five cases of Pistolgrams, now lying on a table in the corridor, one will be found not unworthy of a passing glance. It contains a group of three children, taken a few weeks ago in the garden of Park Crescent, and subsequently alluded to in an article published in the *BRIGHTON HERALD*,* also a series of five election views, recently described in the *BRIGHTON GAZETTE*.† As some present may not be aware how these curious little pictures were taken, permit me to state that my senior pupil was deputed by me last general election to take a Pistolgram, from the street, of the hustings in Greenwich, on the day of the candidates' nomination. But not being able to see over the heads of the crowd in front of the hustings he contrived, Pistolgraph in hand, to scramble up the sides of a van, which happened to be in the street at the time, where, placing one foot on the hind horse and the other on the van, he presented this small parody of an infernal machine at the hustings, touched the trigger, and in less than the twinkling of an eye the first phase of the election was taken, representing one of the candidates in the act of addressing the crowd below. Descending then (the van) to where he had deposited his familiar black-bag, he plunged therein his instrument, discharged it of its containing picture, and charging it with a second plate, ascended the van a second time, and took a second shot, which operation he repeated five times in succession, favouring each of the four candidates with a shot in his turn, and one of them with two.

These five unique illustrations of the electioneering habits

* See extract in appendix from the *Brighton Herald*, under the head "Pistol Camera."

† See extract from the *Brighton Gazette*, headed "The Pistolgraph."

of the Greenwichers in the 19th century, were taken by my pupil, after not more than three weeks practical acquaintance with the Pistolgraph.

Seeing then what a mere novice has produced, what valuable treasures might not be collected with it when in the hands of an expert.

So portable in its entirety, so inexpensive its chemicals, so cleanly and wholesome in its mode of manipulation, that a lady might make, or copy pictures with it, in her boudoir, from morn till night, without once soiling the tips of her fingers or exposing her eyes or lungs to any of those chemical exhalations so injurious to some Photographers who manipulate inside dark rooms or tents.

With it the mariner, bound to distant climes, might at once relieve the dull tedium of a sea voyage, and illustrate his log-book with a portrait of each passing ship; nor would it be found without its use to the soldier in camp or in trench.

Two or three dozen Pistolgrams of native gatherings or domestic circles, taken *au naturelle* in India, China, or Japan, whilst occupying less space in the traveller's bag than as many cigars, would be found in the end to yield a more lasting pleasure than stale fumes from the rank smelling weed, to others as well as the traveller himself, whether in the shape of enlarged reproductions or indurated in Chromo-Crystal, that most permanent of all known modes of preserving a picture from the ravages of damp, foul air, or water. Paintings on canvass, in oil, or in water, on ivory, or cardboard, in distemper, or fresco, the Cartoons of Hampton Court, with their Photographed reproductions on paper, sooner or later, will irrevocably perish by those ordinary atmospheric influences, rife in these climes, long before the indurated freshness of the Chromo-Crystal will be visibly affected. Even that hitherto most durable of all known species of the pictorial art—a painting in enamel, would be irreparably ruined if exposed to that amount of abrasion on its fluxed surface, which would not scratch the Chromo-Crystal beyond the skill of the lapidary to repair, and that without the slightest injury to the deeply ingrained portrait.*

A lively fancy might indeed follow one of these tiny pictures to the bottom of some ocean deep, were, imbedded in the sand for some ten thousand years, until that sand became a rock, and that rock a mountain top, quarried, it might be, by a future race, who, on splitting up a block of marble, discover the tiny Chromo, revealing the likeness of a species long extinct.

* See extract in Appendix from the *Brighton Herald*, headed "Chromo-Crystal Pistolgraphy."

THE PISTOL CAMERA.

[*Extracted from the Brighton Herald of October 8, 1859.*]

Two or three weeks ago we expressed our opinion that this extraordinary instrument, *malgré* its smallness, was the greatest Photographic discovery of the age. We confidently repeat that opinion, for the more we see of this unique piece of mechanism, the more we are fascinated with its gem-like productions,—gems in every sense of the word,—not only as regards the substance in or on which the pictures are produced, but as works of art. Before us is a chromo-crystal group of three children: the laughing, mocking eye of the pet in the centre is, indeed, a Photographic triumph, and the characters of the two others are unmistakably stamped upon their features. No larger than a brooch, the group is as clearly drawn as in the finest line-engraving, or as if cut on the most exquisite cameo.

But the extraordinary way in which these charming little *bijoux* are realised, is as astonishing as the results are beautiful, and it is one which no Photographer, uninitiated in the Inventor's secret, appears to comprehend. It is well known that, by the ordinary process of taking a Photograph, the operator is under the necessity of watching the development of his picture in a *dark room*; but, by Mr. Skaife's newly-discovered Pistolgraphy, the operator, instead of putting his head or his body under a hood or into a dark room, whilst performing those parts of the process usually done in a yellow light, simply dips his Pistolgraph into a species of elastic bag and charges it with something—for anything the spectator can see to the contrary it may be powder and shot. The little brazen instrument is then withdrawn—cocked—on seeing which pointed towards them, children, not acquainted with its object, are apt to take to their heels to avoid being shot—vain attempt!—for the hair trigger has only to be touched and every flying urchin is caught. The Pistolgraph is then thrust a second time into the black bag, and, in a few seconds, *à la jongleur*, a perfect picture of the flying urchins is produced.

THE PISTOLGRAPH.

[*From the Brighton Gazette, October 27, 1859.*]

Our readers will recollect our calling their attention, a fortnight ago, to a new and beautiful species of Photography (Chromo-Crystal), the discovery of Mr. Skaife, the inventor of the Pistolgraph.

The most remarkable examples of this new branch of art we have yet seen, are five Pistolgrams of the nomination of candidates at the last Greenwich election.

Each and every one of these tiny pictures, when viewed through a glass, is seen full of moving detail, emphatically expressing the progress of an actual election scene, contrasting our present political habits with those depicted by Hogarth in the middle of the last century. But independent of these little gems being the most beautiful specimens of instantaneous pictures which pure Heleography has yet achieved, the following circumstances, under which they were obtained, will not detract from the interest the intelligent connoisseur will derive from their inspection:—

On the eve of the last general election, Mr. Skaife sent his senior pupil to take a view of the Greenwich polling booth, preliminary to attempting an election scene on the following day. But on arriving in Stockwell Street, *vis-à-vis* the hustings, the pupil found a dense crowd listening to the nomination of candidates, and being unable to see over the heads of the former, he contrived to scramble up the sides of a van belonging to Mr. Angerstein, when having, with permission of the driver, placed one foot on the hind horse, the other on the van, he flashed his Pistolgraph at the hustings five times in succession, the result being the five Pistolgrams in question, representing in the distance the hustings filled with the candidates and their supporters, every one of the former, viz., Angerstein, Salomons, Chambers, and Maxwell, being seen in their turn to address the motley assembly below, consisting of cabbies, bill-stickers, butcher boys, Greenwich pensioners, police, and rag-and-tag roughs doing duty as electioneering touters.

In the foreground of one, a Greenwich pensioner is perceived trying to catch a bit of the hustings' sweet discourse by placing both hands behind his ears; in another, a sly rascal is detected "poking anything but fun" under the ribs of a poor hack whose master is evidently too drugged already with the political electuary he is sucking in to perceive the cause which has made his poor grizzle start so violently. In all, a stout Jehu figure, undergoing martyrdom on a dog-cart; in four out of the five, he supports his pent-up position with fortitude erect, but in the fifth, nature has unmistakeably given way.

One of these tiny histograms has been designated by the London press, "The world in motion," but the whole series should be well studied with a good magnifying glass, in order to properly estimate the invaluable properties of the little instrument by which they were achieved.

CHROMO-CRYSTAL PISTOLGRAPHY.

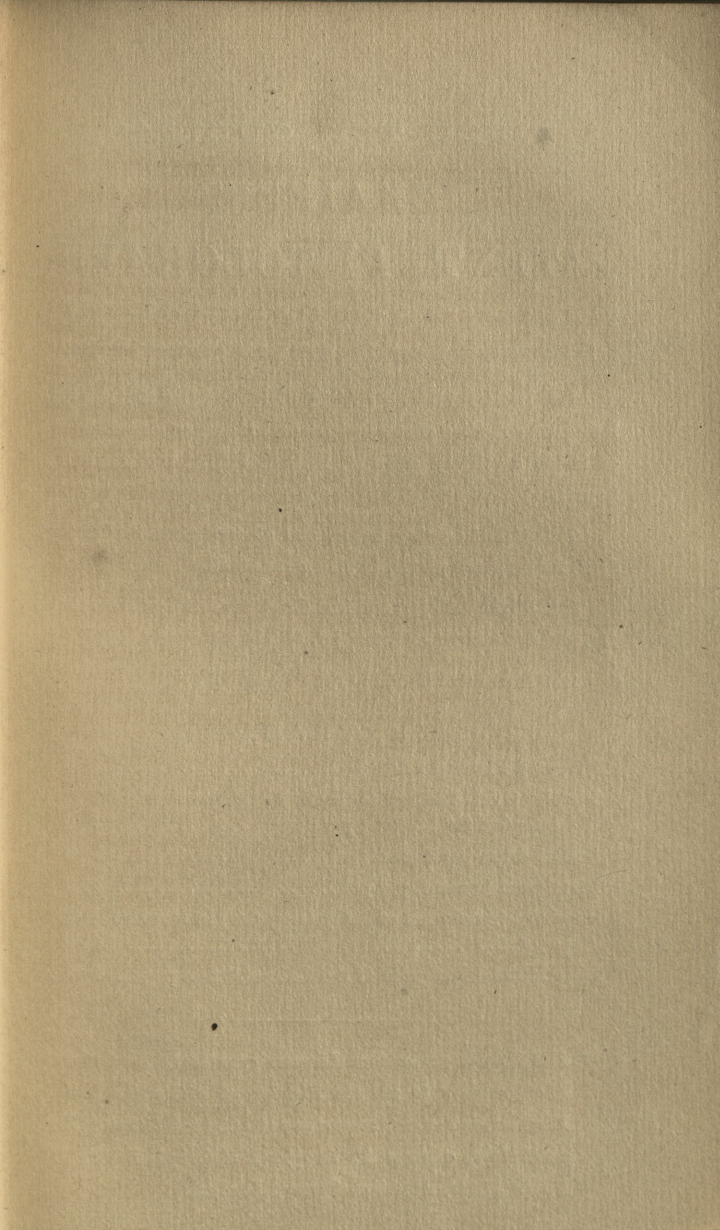
[*Extracted from the Brighton Herald of October 22, 1859.*]

Since our last publication but one, we have been supplied with some details respecting the origin of those *chef-d'œuvres* of Photography called Chromo-Crystals, now on view at the Medical Hall, East Street, and which not only delight the eye with their artistic beauties, but, on being handled, convey the same sort of impression of their permanency as does a picture in mosaic on being subjected to the touch.

The Chromo-Crystal is a picture in glass, obtained, in the first instance, by an instantaneous flash of light, and subsequently made permanent by fire. The process of giving permanency to a Photograph by fire was discovered by Mr. Skaife, the inventor of the Pistolgraph, whilst endeavouring to fix a Photograph on the surface of an enamelled platina plate in a furnace he had especially erected for the purpose. After the expenditure of several hundred pounds in this species of alchemy, he found, that by enclosing a Photographic picture between two plates of glass, and subjecting the compound to a heat short of that required to melt glass, for a definite time, the three substances eventually form but one, as hard and as homogeneous as a single piece of crystal—as equally unaffected by damp or moisture, and as capable of being cut by a lapidary into any required shape, whilst the original lustre of the indurated picture would continue as unchanged as the innate veins of a polished agate.

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